ABSTRACT OF THE DISCLOSURE

DESIGN BY SPACE TRANSFORMATION

FROM HIGH TO LOW DIMENSIONS

A method is provided for transforming data from a high-dimensional to low-dimensional design space, and for inspecting the transformed data in such a manner as to permit effective navigation and exploration of the high-dimensional design space. Conveniently, an optimum/conditional value for a prescribed functional representation of the transformed data can be derived by visual inspection of a 2-D image map representation of the transformed data.

Significantly, the invention has utility for various aircraft design applications and although this technology has been developed with reference to aircraft aerodynamic design in particular, the design space visualisation and curve-fitting technology developed is general. It should therefore be equally applicable to other disciplines such as cost analysis, structures and computational electromagnetics, in which expensive analysis tools are used to find optima for complicated design problems. It is expected to be particularly useful in multi-disciplinary design and situations where there are multiple optima in the design space.

Figure 13